

REMARKS

This amendment is responsive to the non-final Office Action mailed January 20, 2010. Applicants request reconsideration of the above-identified application in view of the remarks set forth herein.

Claims 1 and 2 are pending in the application. Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a). Claim 2 has been amended. Claim 1 has been canceled. Applicants respectfully submit that Claim 2 is now in condition for allowance. Accordingly, applicants request reconsideration and allowance of Claim 2.

Summary of June 2, 2010 Examiner Interview

The undersigned attorney conferred with Examiners Dye and Kashnikow regarding the present application. The Examiners are thanked for their time and a productive interview.

During the interview, the § 103(a) rejection of Claim 2 was discussed. The undersigned attorney set forth remarks and arguments for patentability of pending Claim 2 in view of the prior art. Particularly, the Examiners were referred to FIGURES 11 and 12 in the application as filed, which characterize the state of the prior art at the time of filing and the prior art cited in the rejection of Claim 2. It was noted that the prior art shown in FIGURE 11 includes a stretch rod 14 and a press rod 15 that are applied to a preform 10 throughout both elongation of the preform 10 and blow molding. Conversely, the prior art shown in FIGURE 12 does not include a stretch rod or a press rod. The prior art figures were contrasted with the figures illustrating embodiments of the invention in FIGURES 5 and 6. Specifically, an embodiment of the two-stage elongation and blow molding of Claim 2 is illustrated in FIGURES 5 and 6, wherein the stretch rod 14 and the press rod 15 are applied during elongation of the preform 10, and wherein the press rod 15 is removed prior to blow molding (e.g., step A-3 of FIGURE 5). Therefore, it was argued that Claim 2 is distinct from the prior art at least because in Claim 2 the

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press rod 15 is removed subsequent to preform elongation but prior to blow molding, whereas the press rod remains attached to the preform through blow molding in the prior art (e.g., as defined by FIGURE 11).

The benefits of the method of the claimed invention were then briefly set forth by paraphrasing the first full paragraph of page 10 of the application (i.e., use of the claimed method provides improved uniformly biaxially elongated oriented polyester compared to the cited references).

In addition to the remarks for patentability of pending Claim 2, a potential amendment to Claim 2 was discussed. The potential amendment to Claim 2 discussed during the interview was essentially identical to amended Claim 2 herein. The Examiners indicated that the amendment to Claim 2 further defined the two-stage primary orientation blow molding set forth in pending Claim 2 and may overcome the present rejection of Claim 2. In this regard, the Examiners indicated that if the proposed amendment to Claim 2 were filed (as it is in the present paper), an additional search directed to the claim would be required prior to allowance of the claim.

The Examiners requested that applicants file an amended Claim 2 and remarks directed to patentability of the claim in view of the cited references, as set forth in the interview.

No conclusion was reached with regard to allowable subject matter.

The Examiners are once again thanked for their time.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1 and 2 stand rejected as obvious over Collette et al. (U.S. Patent No. 5520877) in view of Jabarin (U.S. Patent No. 4476170), Gittner et al. (U.S. Patent No. 4177239), and Sugiura (U.S. Patent No. 4641758). Applicants respectfully request withdrawal for this ground of rejection in view of the above amendments and the following remarks.

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To establish a *prima facie* case of obviousness, the cited prior art references must teach or suggest every element of the claims. In addition, there must be some apparent reason, either in the references or in the knowledge of one skilled in the art, to modify the reference or to combine the elements of multiple references with a reasonable expectation of success. Applicants respectfully submit that a *prima facie* case of obviousness has not been established and amended Claim 2 is allowable.

Claim 2, as currently amended, generally recites a method of manufacturing a biaxially-oriented polyester container. The method of Claim 2 recites:

2. (Currently amended) A method of manufacturing a biaxially-oriented polyester container formed by a double-stage orientation blow molding method, the containers having a uniformly elongated bottom part having uniform wall thickness, the method comprising:

(a) performing two-stage primary orientation blow molding of a preform made of a polyester resin to obtain a primary molded product larger than a final molded product, the two stages of primary orientation blow molding comprising:

(i) a first stage, wherein the bottom part of the preform is elongated while being restrained by a stretch rod and a press rod to obtain an elongated preform; and

(ii) a second stage, wherein the bottom part of the elongated preform is released from the restrained state prior to blow molding to provide the primary molded product;

(b) heat-shrinking said primary molded product into a secondary molded product; and

(c) performing secondary orientation blow molding of said secondary molded product to obtain the final molded product.

Claim 2, as amended, particularly recites the two-stage primary orientation blow-molding step of the method. The two stages of primary orientation blow molding are explicitly divided into steps (i) and (ii) to define elongation of a restrained preform in step (i) and blow molding of the preform when partially released from restraint in step (ii). Support for the amendments to Claim 2 can be found throughout the application as filed and particularly in FIGURES 5 and 6,

which illustrate the two-stage primary orientation blow molding, and the related text describing the figures (e.g., at page 11, fourth paragraph, through page 13, first paragraph).

The Office Action cites Collette et al. as teaching a method for forming a biaxially-oriented bottle-shaped container by first blow molding a preform to a size larger than the final product size, heat shrinking the intermediate product, and blow molding the intermediate product to obtain the final product. The Office Action notes that Collette et al. is silent with respect to whether the bottom of the preform is unrestrained during the primary blow-molding step. In this regard, the Office Action cites Jabarin as teaching that mechanical axial stretching of a blow molded container can take place in a first stage but not in a later stage of blow molding (see column 7, lines 35-44). Sugiura and Gittner et al. are relied on as teaching additional aspects of Claim 2.

The cited references, whether alone or in combination, fail to teach, suggest, or otherwise make obvious, every element of Claim 2, as amended. Specifically, the cited references fail to teach or suggest the recited two-stage primary orientation blow molding of a preform, wherein the first-stage includes elongating a preform while restrained by a stretch rod and a press rod to obtain an elongated preform, and wherein in a second stage the bottom part of the elongated preform is released from the restrained state prior to blow molding to provide a primary molded product.

The Office Action relies on Jabarin as teaching two-stage primary orientation blow molding. However, Jabarin does not teach the first stage and second stage of primary orientation blow molding recited in Claim 2. In this regard, neither the Jabarin reference, nor any of the cited references, teach a press rod, as recited in Claim 2. Furthermore, none of the cited references teach the two-stage primary orientation blow molding recited in Claim 2, wherein the press rod restrains the bottom part of a preform during elongation and is released from

restraining the elongated preform prior to blow molding. Collette et al., Sugiura, and Gittner et al. do not remedy the above-cited deficiencies of Jabarin with regard to teaching every element of Claim 2.

For at least the reasons set forth above, the cited references fail to teach, suggest, or otherwise make obvious, every element of Claim 2. Accordingly, applicants respectfully request withdrawal for this ground for rejection.

Additionally, for the Examiner's edification, the following remarks are provided regarding exemplary improvements over the prior art made by the method of Claim 2, as briefly discussed during the Examiner Interview.

As set forth in the application, the inventors discovered that using prior art techniques, such as those illustrated in FIGURE 11, resulted in a formed product (e.g., a container) having a bottom portion with a low degree of polymer orientation (See Application, pages 9 and 10). Specifically, according to the orientation parameter (BO) defined in the application, prior art containers have a particularly low degree of polymer orientation in the central area of the bottom of the container. In the prior art method of FIGURE 11, a stretch rod 14 and a press rod 15 both immobilize a bottom of a preform 10 during both elongation (middle step of the figure) and blow molding (final step of the figure) stages of the primary blow molding process. During the prior art process, the bottom part of the formed container has a low degree of polymer orientation (as defined by the orientation parameter BO) in the bottom central area of the formed article (See Application, pages 9 and 10). According to the inventor's findings, heat-setting the final blow-molded product obtained using the prior art method produced undesirable results because the lack of uniformity of the materials of the bottom part of the formed article, which resulted in whitening caused by thermal crystallization.

Conversely, by using the method of Claim 2, as illustrated in FIGURES 5 and 6, the inventors found that uniformly biaxially-elongated polymer chains were obtained even in the bottom portion of blow-molded articles. The polymer uniformity resulting from the method of Claim 2 results in a formed article that has a bottom portion that can be heat-set at high temperatures so as to provide heat resistance without whitening (Application, page 10). Therefore, blow-molded containers formed using the method of Claim 2 are particularly effective for producing heat-resistant articles without the whitening and thermal crystallization resulting in similar products produced using prior art techniques.

CONCLUSION

In view of the foregoing amendments and remarks, applicants respectfully submit that the present application is in condition for allowance. The Examiner is invited to contact the undersigned attorney with any remaining questions or concerns.

Respectfully submitted,

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